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SPECIFICATION FOR TELEVISION PATTERN GENERATORS

PART II METHODS OF MEASUREMENTS

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SPECIFICATION FOR TELEVISION PATTERN GENERATORS

PART II METHODS OF MEASUREMENTS

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SPECIFICATION FOR TELEVISION PATTERN GENERATORS

PART II METHODS OF MEASUREMENTS

0. FOREWORD

0.1 This Indian Standard (Part II) was adopted by the Indian Standards Institution on 16 October 1980, after the draft finalized by the Electronic Measuring Equipment Sectional Committee had been approved by the Electronics and Telecommunication Division Council.

0.2 This Indian standard relates to television pattern generators used in testing, calibration, aligning and servicing of the television receivers.

This standard has been prepared in the following parts :

a) Part I Requirements, and
b) Part II Methods of measurements.

0.3 Television pattern generators have been classified in the following three categories according to the requirements of laboratories and servicing centres:

a) Television pattern generators for TV technicians (servicing model),
b) Television pattern generators for servicing installations (installation model), and
c) Television pattern generators for laboratories, manufacturers and TV centres (professional model).

0.4 For she purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test, shall be rounded off in accordance with IS : 2-1960*. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

1. SCOPE

1.1 This standard (Part II) lays down the conditions and detailed procedures for the tests to be conducted on television pattern generators in

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*Rules for rounding off numerical values (*revised*).

the frequency range of all the channels of 3, 4, 5, 6, 7, 8, 9, 10 to determine their performance characteristics.

1.2 These tests apply to complete television pattern generators only and not to component parts thereof.

2. TERMINOLOGY

2.0 For the purpose of this standard, the following definitions and explanation of terms shall apply.

2.1 Magnitude of RF Voltage — VHF signal amplitude shall be categorised in two ways, TV receivers maximum signal handling capacity and sensitivity.

2.2 Television Pattern Generator — It is the source of audio, synchronizing signal pulses for frame and line, and video patterns comprising of composite video signals.

2.3 Output Voltage — It is the value of the voltage at the output terminals of the pattern generators, when terminated with the specified load impedance.

2.4 Source Impedance — It is the value of the pattern generator looking into it at the output terminals.

3. GENERAL CONDITIONS FOR MEASUREMENTS

3.0 All measurements shall be carried out under normal measurement conditions specified below:

3.1 Normal Supply Voltage — Rated voltage shall be applied to the pattern generator.

3.1.1 In case of ac mains operation, the voltage shall be applied at the rated frequency. The harmonic content of ac mains voltage supply shall not exceed 2 percent.

3.1.2 *Power Supply* — The TV pattern generators shall be designed to operate on power supply as specified below:

Rated voltage	240 V
Operating voltage:	
Maximum	250 V
Nominal	240 V
Minimum	200 V

Variation in mains supply frequency (50 Hz) shall be within ± 2 percent.

3.1.3 In case of battery operation, primary or secondary batteries of the type and the rated voltage, as specified by the manufacturer, shall be used.

3.2 Termination — The television pattern generator shall be terminated with the specified load impedance.

3.3 Standard Environmental Conditions for Tests — All tests shall be carried out under following environmental conditions:

a) Temperature	between 15°C to 35°C
b) Relative humidity	between 45 to 75 percent
c) Atmospheric pressure	between 86 to 106 kPa

If the conditions mentioned above, have a significant influence, these shall be kept substantially constant during the test.

3.4 Measurements — All measurements shall be carried out after the initial warm up period specified by the manufacturer.

Measurements shall be carried out for each channel frequency.

3.5 Accuracy of Test Instruments — The test instruments employed to carry out measurements in accordance with this standard shall have an accuracy of at least one order higher than the specification of the apparatus against the quantity under measurement.

3.6 Test Report — The test report should clearly indicate the following:

a) The accuracy of the test instrument used (VHF, UHF oscilloscope, frequency counters, RF millivoltmeter, etc.),

b) Rated supply voltages, and

c) Environmental conditions under which tests are carried out.

3.7 Output Measurements

3.7.1 *Measurement of Output Voltage* — High frequency output voltage measurements shall be carried out at the particular channel frequency.

Output voltage may be measured directly with a VHF/UHF oscilloscope or high impedance VHF voltmeter and it may be terminated by the specified impedance level.

3.7.1.1 The reading corresponding to the high and low peak to peak levels should be measured for calibration purpose.

3.7.2 *Variation of Output Voltage with Frequency* — The pattern generator shall be terminated by the specified load impedance. The output level switch or control should be adjusted to a fixed value. This shall be measured by an electronic RF/VHF voltmeter with output control setting constant. The channel frequencies are changed in steps over the whole range from third channel to the tenth channel and output voltages shall be measured for corresponding channels. The output voltage thus measured shall be plotted as a function of frequency to give the freqency response of television pattern generator.

3.7.3 *Output Voltage Variation Due to Temperature* — The output voltage shall be measured at any channel frequency at upper and lower category temperature after thermal equilibrium is reached at each temperature. For these measurements, the output voltage variation with temperature shall be computed.

3.7.4 *Output Voltage Variation Due to ac Mains Voltage Variation* — In case of ac operated pattern generator, the mains voltage shall be varied over the specified range of supply voltage in steps of 10 V and the output voltage measured after maintaining the supply voltage at each step for a period of one minute. The change in output voltage due to mains voltage variation shall be computed from these measurements.

4. MEASUREMENT OF FREQUENCY AND TIME OF VARIOUS SIGNALS

4.0 The following tests shall be carried out on the television pattern generator. Test points shall be available/accessible in the unit for the measurement of various signals.

4.1 Line Frequency — Line frequency is measured directly from the test points duly marked for horizontal section.

4.2 Frame Frequency : (For Vertical Section) — The frame frequency is measured by a frequency counter.

4.3 Calibration Requirements — The horizontal and vertical synchronizing signal shall be available at the test point, duly marked and the same may be tested on any high frequency oscilloscope.

5. INFORMATION REQUIRED BY TESTING AUTHORITY

5.1 The following is the minimum information required by the testing authority for carrying out measurements in accordance with this standard :

a) Serial number and model designation of the pattern generator;

b) Name and trade-mark of the manufacturer;

c) Type of power supply and the operating voltage;

d) Maximum power consumption in the case of mains-operated pattern generators or maximum current range in the case of battery operated pattern generators;

e) Plan of the chassis showing the location of the component; and

f) Any other information or caution which the manufacturer may consider necessary.